

# ACHLYA DAYALI, A NEW WATER MOULD FROM THE RIVER MUTHA<sup>1</sup>

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(With five text-figures)

**Key words:** new species, *Achlya dayali*, comparison

*Achlya dayali*, a new species of *Achlya*, has been isolated from the River Mutha and compared with its allied species *A. racemosa*.

## INTRODUCTION

Aquatic fungi were isolated from the Rivers Mula and Mutha. A total of 11 genera, and 24 species were isolated from the different established sampling stations on the rivers. Amongst all the genera, the genus *Achlya* with its 13 species was dominant and isolated frequently from all the stations. *A. dayali* is described here as a new species, it broadly resembles *A. racemosa* Hildebrand (Coker 1923, Johnson 1956), but differs in developing short or long stalked oogonia and only one or two centric oospores. (Coker 1923; Johnson 1956; Sparrow 1960, 1968, 1973; Dayal and Thakurji 1969; Howard 1971; Dick 1973; Dayal and Usha Kiran 1988) The new species described here was isolated only from the Vitthalwadi sampling station, on the Mutha, in July.

## MATERIAL AND METHODS

Five sampling stations were established on River Mutha for regular collection of water samples every fortnight. These were Khadakwasla, Vitthalwadi, Garware College, Bal Gandharva bridge and Sangam bridge. Zoosporic fungi were isolated from these samples by baiting (Butler 1907). Mixed cultures were purified by the hyphal tip technique. Temperature of the

water samples was measured directly, whereas pH and DO were measured as per standard procedures (APHA 1992).

*Achlya dayali* sp. nov.  
(Figs 1-5)

Growth in culture moderately dense, hyaline, developing into a colony of 1 cm diameter within a week. Hyphae stout at the base, 85.2  $\mu\text{m}$  thick, tapering gradually at the tips, often sparingly branched.

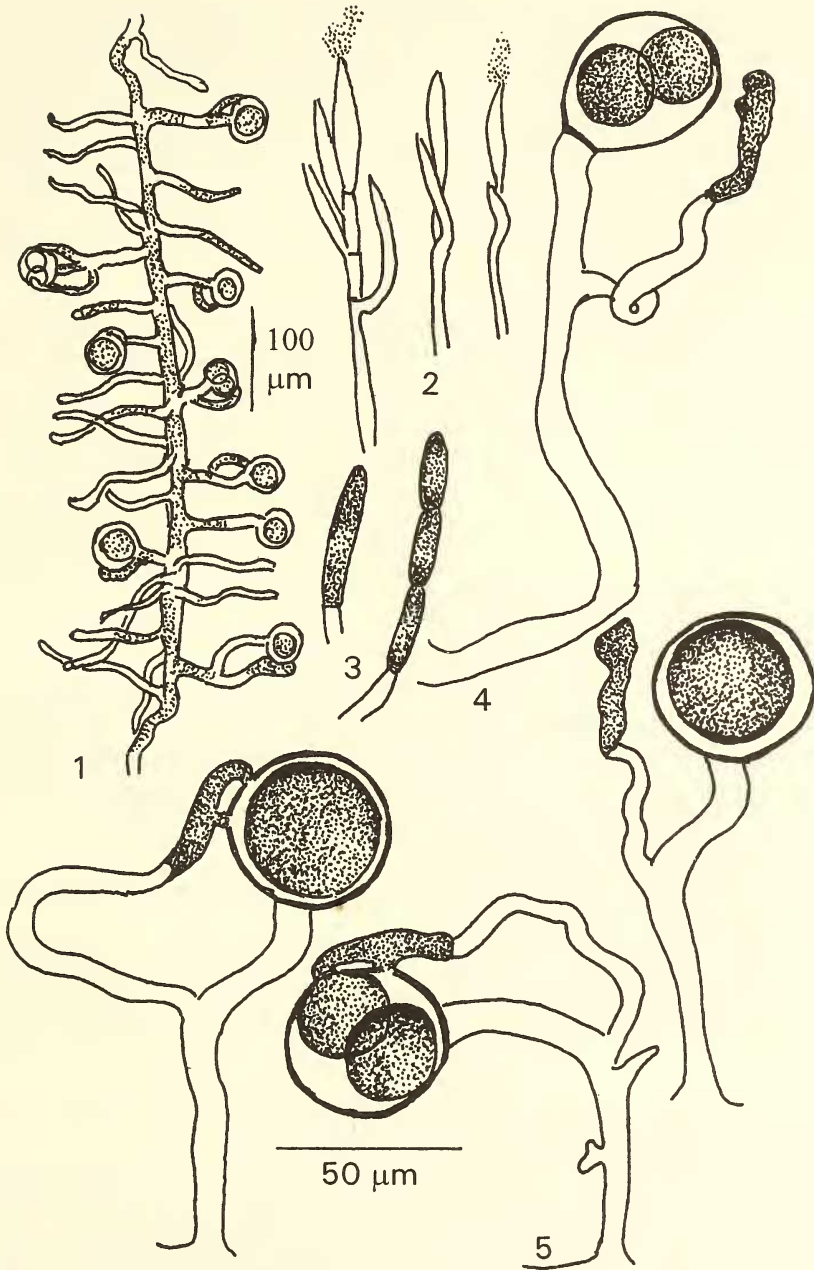
Zoosporangia abundant, elongated, cylindrical, rounded or tapering at the tips, almost the same size as the hyphae, rarely a little larger, 28.4  $\mu\text{m}$  to 48.0  $\mu\text{m}$  in diameter, twisted like a cork screw, often more sporangia developed very closely below the first one. Zoospores 9.3  $\mu\text{m}$  in diameter, forming an irregular mass, which slowly enlarges; spores released singly or in groups. Gemmae few, mostly terminal, slightly swollen.

Oogonia abundant, scattered all over the culture, 31.2  $\mu\text{m}$  to 46.8  $\mu\text{m}$  in diameter, often racemously developed, on long slender stalks, rarely on short stalks of the main hyphae, spherical, sometimes curved; oogonial wall smooth or inconspicuously pitted at the contact of antheridium. Eggs spherical, one or two per oogonium, 18.7  $\mu\text{m}$  to 28.7  $\mu\text{m}$  in diameter, centric, majority of oogonia with a single egg occupying almost entire space.

Antheridial branches often androgynous, long, occasionally short, developed from the long stalks of oogonia, may be coiled, very often single

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Figs 1-5: *Achlya dayali* sp. nov.:

- 1. Thallus showing oogonia with monoclinous androgynous antheridia;
- 2. Development of zoosporangia (note twisted sporangia);
- 3. Segmented gemmae;
- 4. Long stalked oogonia with androgynous antheridia;
- 5. Oogonia with curved stalk (note antheridial cell projections and centric oospores).

## NEW DESCRIPTIONS

TABLE I  
COMPARISON OF CHARACTERISTICS OF *ACHLYA RACEMOSA* AND *ACHLYA DAYALI*

	Hyphae	Sporangia	Zoospores	Oogonia	Oospore
<i>A. racemosa</i> Hildebrand	30-90 $\mu\text{m}$ , usually 25-36 $\mu\text{m}$	200-900 * 15-45 $\mu\text{m}$ , usually 300-400 * 25-35 $\mu\text{m}$	8-12 $\mu\text{m}$	30-110, usually 40-80	15-38 $\mu\text{m}$ , usually 23-29; 1-10 in number, usually 2-6
<i>A. dayali</i> sp. nov.	85.2 $\mu\text{m}$	28.4-48.0 $\mu\text{m}$	9.3 $\mu\text{m}$	31.2-46.8 $\mu\text{m}$	18.7-28.7 $\mu\text{m}$ ; 1 or 2 in number

antheridium about the oogonium. Conspicuous fertilization tube may be present. No epigynous antheridia were observed.

Isolated from Mutha river, July 1995, Pune, Maharashtra, India.

## LATIN DIAGNOSIS

Mycellis in semmine opium tenuibus, hyphis ramosis porrectis usque ad 1.0 cm in diametrum. Hyphis primariis in basi 85.2  $\mu\text{m}$  diam. Sporangii copiosis, attenatis sine cylindractis ad basim saepicus laterioribus, 28.4  $\mu\text{m}$  to 48.0  $\mu\text{m}$  in diametrum, basi proliferantibus, apice dehiscentibus et in sphaerula dispositis. Gemmae pancis, variae, natu majoribus valde variae. Oogoniis copiosis, globosis, autellipticis natis ex primariis hyphis in ramulis lateralibus longis curvis aut raro rectis, oogoniis ipsis 31.2  $\mu\text{m}$  to 46.8  $\mu\text{m}$  in diametrum tunica crassa non-punctata, oosporiis numero 1-2, globosis, 18.7  $\mu\text{m}$  to 28.7  $\mu\text{m}$  in diametrum,

guttulis olivaceosis centrice dispositis; tunica crassa, hyalina. Antheridiis pancis declinibus androgenibus.

Hab ad terram humosam in rivi Mutha, July 1995, Pune, Maharashtra, India.

**Etymology:** The species is named in honour of Prof. R. Dayal who has published a monograph on zoosporic fungi of India.

## DISCUSSION

*Achlya dayali*, described here as a new species, showed important and major differences from its closest allied species *A. racemosa*. It is described as a new species on the basis of the differences given in Table 1.

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